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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,777	07/28/2006	Gregory P. Crawford	35947-002	2453

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MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C
ONE FINANCIAL CENTER
BOSTON, MA 02111

EXAMINER	
BERHANU, ETSUB D	

ART UNIT	PAPER NUMBER
3768	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/587,777	CRAWFORD ET AL.	
	Examiner	Art Unit	
	ETSUB D. BERHANU	3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/26/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-3 and 5-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 recites the limitation of "wherein the wavelength filter comprises at least one pair of planar non-polarizing substrates in parallel opposed relation". There is no support or description in the Specification indicating that the pair of planar substrates are non-polarizing substrates. For this reason, claims 1-3 and 5-20 are rejected because the new matter amended into the claim is not supported by the Specification.

Claim Rejections - 35 USC § 103

4. Claims 1-3, 9, 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caro'003 (previously cited) further in view of Cole et al.'970 (previously cited).

Figure 1 of Caro'003 discloses a non-invasive spectrometric device for assessing the level of hemoglobin in mammalian tissue (col. 4, line 38-47), the device comprising a wavelength filter means for transmitting or reflecting wavelengths of light, light intensity sensor means arranged and disposed to

measure the intensity of the wavelengths transmitted or reflected by the wavelength filter means and generate an electrical signal therefrom, output processing means connected to the light intensity sensor means to receive and process the output therefrom and display means connected to the output processing means to display the output (col. 5, lines 26-50), wherein the light intensity sensor means is arranged and disposed such that the wavelengths of light are transmitted through the wavelength filter means into the light intensity sensor means and also reflected from the wavelength filter means into the light intensity sensor means (see description of Figures 1, 2 and 5), wherein the light intensity sensor means is selected from the group consisting of an array of CCD and a photodiode (col. 10, lines 57-64). Caro'003 also discloses that solid state lasers or crystal lasers are capable of being used as the wavelength filter means (col. 9, lines 51-57). Caro'003 discloses all the elements of the current invention, as discussed above, except for the wavelength filter means comprising at least one pair of planar substrates in parallel-opposed relation, at least one layer of light-wavelength modulating material disposed between the pair of planar substrates and a power source in power-providing communication with the substrates. Figure 2 of Cole et al.'970 teaches a crystal laser comprising at least one pair of planar substrates in parallel-opposed relation, at least one layer of light-wavelength modulating material disposed between the pair of planar substrates and a power source in thermal communication with one of the pair of substrates so as to create a temperature change in the wavelength modulating material (see ABSTRACT, SUMMARY and description of Figure 2). It is noted that while Cole et al.'970 does not teach the specifics of the power source, it is well known in the art to implement a resistive heater as an element capable of providing heat to a substance as required in the device of Cole et al.'970. It would have been within the skill of the art to implement the crystal laser of Cole et al.'970 as the wavelength filtering means of Caro'003 since Caro'003 discloses that crystal lasers are capable of being used as the wavelength filtering means and Cole et al.'970 teaches a crystal laser capable of being used in the device of Caro'003. Regarding the limitation that the substrates need to be non-polarizing, it is noted that the Applicant has failed to provide

criticality or unexpected results of such non-polarizing substrates in the Specification. As Cole et al.'970 fails to provide the specific details of the substrates used in its wavelength filter, it would have been within the skill of the art, through due experimentation, to realize an optimum substrate material to receive the most accurate results.

5. Claims 1-3, 5, 8, 11-15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caro'003 (previously cited) further in view of Domash et al.'573 (previously cited).

Figure 1 of Caro'003 discloses a non-invasive spectrometric device for assessing the level of hemoglobin in mammalian tissue (col. 4, line 38-47), the device comprising a wavelength filter means for transmitting or reflecting wavelengths of light, light intensity sensor means arranged and disposed to measure the intensity of the wavelengths transmitted or reflected by the wavelength filter means and generate an electrical signal therefrom, output processing means connected to the light intensity sensor means to receive and process the output therefrom and display means connected to the output processing means to display the output (col. 5, lines 26-50), wherein the light intensity sensor means is arranged and disposed such that the wavelengths of light are transmitted through the wavelength filter means into the light intensity sensor means and also reflected from the wavelength filter means into the light intensity sensor means (see description of Figures 1, 2 and 5), wherein the light intensity sensor means is selected from the group consisting of an array of CCD and a photodiode (col. 10, lines 57-64). Caro'003 also discloses that solid state lasers or crystal lasers are capable of being used as the wavelength filter means (col. 9, lines 51-57). Caro'003 discloses all the elements of the current invention, as discussed above, except for the wavelength filter means comprising at least one pair of planar substrates in parallel-opposed relation, at least one layer of light-wavelength modulating material disposed between the pair of planar substrates and a power source in power-providing communication with the substrates. Figures 1A, 1B, 2A and 2B of Domash et al.'573 teach a crystal laser comprising at least one pair of planar substrates in parallel-opposed relation, at least one layer of light-wavelength modulating material disposed between

the pair of planar substrates and a power source in electrical communication with the substrates wherein the substrates are electrically conducting substrates and wherein the light-wavelength modulating material comprises a layer of holographic polymer dispersed liquid crystals, one layer of holographic polymer dispersed liquid crystals arranged between two parallel-opposed electrically conducting substrate layers and wherein the holographic polymer dispersed liquid crystals have an index of refraction variable in response to an applied electric field (see ABSTRACT, description of Figures 1A, 1B, 2A, 2B, col. 4, line 12 – col. 5, line 3 and col. 7, lines 8-36). It would have been within the skill of the art to implement the crystal laser of Domash et al.'573 as the wavelength filtering means of Caro'003 since Caro'003 discloses that crystal lasers are capable of being used as the wavelength filtering means and Domash et al.'573 teaches a crystal laser capable of being used in the device of Caro'003. Regarding the limitation that the substrates need to be non-polarizing, it is noted that the Applicant has failed to provide criticality or unexpected results of such non-polarizing substrates in the Specification. As Domash et al.'573 fails to provide the specific details of the substrates used in its wavelength filter, it would have been within the skill of the art, through due experimentation, to realize an optimum substrate material to receive the most accurate results.

6. Claims 1-3, 5 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caro'003 further in view of So et al.'694 (previously cited).

Figure 1 of Caro'003 discloses a non-invasive spectrometric device for assessing the level of hemoglobin in mammalian tissue (col. 4, line 38-47), the device comprising a wavelength filter means for transmitting or reflecting wavelengths of light, light intensity sensor means arranged and disposed to measure the intensity of the wavelengths transmitted or reflected by the wavelength filter means and generate an electrical signal therefrom, output processing means connected to the light intensity sensor means to receive and process the output therefrom and display means connected to the output processing means to display the output (col. 5, lines 26-50), wherein the light intensity sensor means is arranged and

disposed such that the wavelengths of light are transmitted through the wavelength filter means into the light intensity sensor means and also reflected from the wavelength filter means into the light intensity sensor means (see description of Figures 1, 2 and 5), wherein the light intensity sensor means is selected from the group consisting of an array of CCD and a photodiode (col. 10, lines 57-64). Caro'003 also discloses that solid state lasers or crystal lasers are capable of being used as the wavelength filter means (col. 9, lines 51-57). Caro'003 discloses all the elements of the current invention, as discussed above, except for the wavelength filter means comprising at least one pair of planar substrates in parallel-opposed relation, at least one layer of light-wavelength modulating material disposed between the pair of planar substrates and a power source in power-providing communication with the substrates. Figures 1A-E of So et al.'694 teach a crystal layer comprising at least one pair of planar substrates in parallel-opposed relation, at least one layer of light-wavelength modulating material disposed between the pair of planar substrates and a power source in communication with the substrate wherein the substrates are electrically conducting substrates and the light-wavelength modulating material comprises at least one layer of cholesteric liquid crystals stacked in alternating, superposed relation to a plurality of substrate levels, and wherein a power source produces electrical energy perpendicular to a pitch axis of the cholesteric liquid crystal layers (see ABSTRACT, description of Figures 1A-E and page 1, section [0007] - page 2, section [0012]). It is noted that the one layer of CLC is capable of producing different pitch sizes as an electric field is varied. It would have been within the skill of the art to implement the crystal laser of So et al.'694 as the wavelength filtering means of Caro'003 since Caro'003 discloses that crystal lasers are capable of being used as the wavelength filtering means and So et al.'694 teaches a crystal laser capable of being used in the device of Caro'003. Regarding the limitation that the substrates need to be non-polarizing, it is noted that the Applicant has failed to provide criticality or unexpected results of such non-polarizing substrates in the Specification. As So et al.'694 fails to provide the specific details of the substrates used

in its wavelength filter, it would have been within the skill of the art, through due experimentation, to realize an optimum substrate material to receive the most accurate results.

Response to Arguments

7. Applicant's arguments filed 02 February 2009 have been fully considered but they are not persuasive. Applicant argues on pages 6 and 10 of the Remarks that Caro fails to disclose an apparatus which measures light reflected from a tissue. Examiner draws the Applicant's attention to Figure 10 which clearly indicates that one embodiment of the apparatus comprises a detector which receives light reflected from the tissue, not transmitted through. Regarding Applicant's arguments on page 7 that Johnson discloses polarizing layers, it is noted that the rejection of claims depending on the Johnson reference have been withdrawn. However, arguments against the Cole, Domash and So references are not persuasive as these references do not give specific details of their substrates and do not indicate in their disclosures that the layers are polarizing. As the Applicant has failed to provide criticality or unexpected results for the non-polarizing substrates recited in claim 1, and as Cole, Domash and So do not provide specific details of their substrates, it would have been within the skill of the art, through due experimentation, to realize an optimum substrate material for the Cole, Domash and So substrates in order to provide the most accurate results.

Conclusion

8. The following is a statement of reasons for the indication of allowable subject matter: None of the prior art teaches or suggests, either alone or in combination, a non-invasive spectrometric device comprising a wavelength filter comprising at least one pair of planar non-polarizing substrates in parallel opposed relation, wherein a layer of light-wavelength modulating material disposed between the pair of

planar substrates comprises deformed helix ferroelectric liquid crystals, in combination with the other claimed elements.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ETSUB D. BERHANU whose telephone number is (571)272-6563. The examiner can normally be reached on Monday - Friday (7:00 - 3:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571)272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eric F Winakur/
Primary Examiner, Art Unit 3768

EDB